

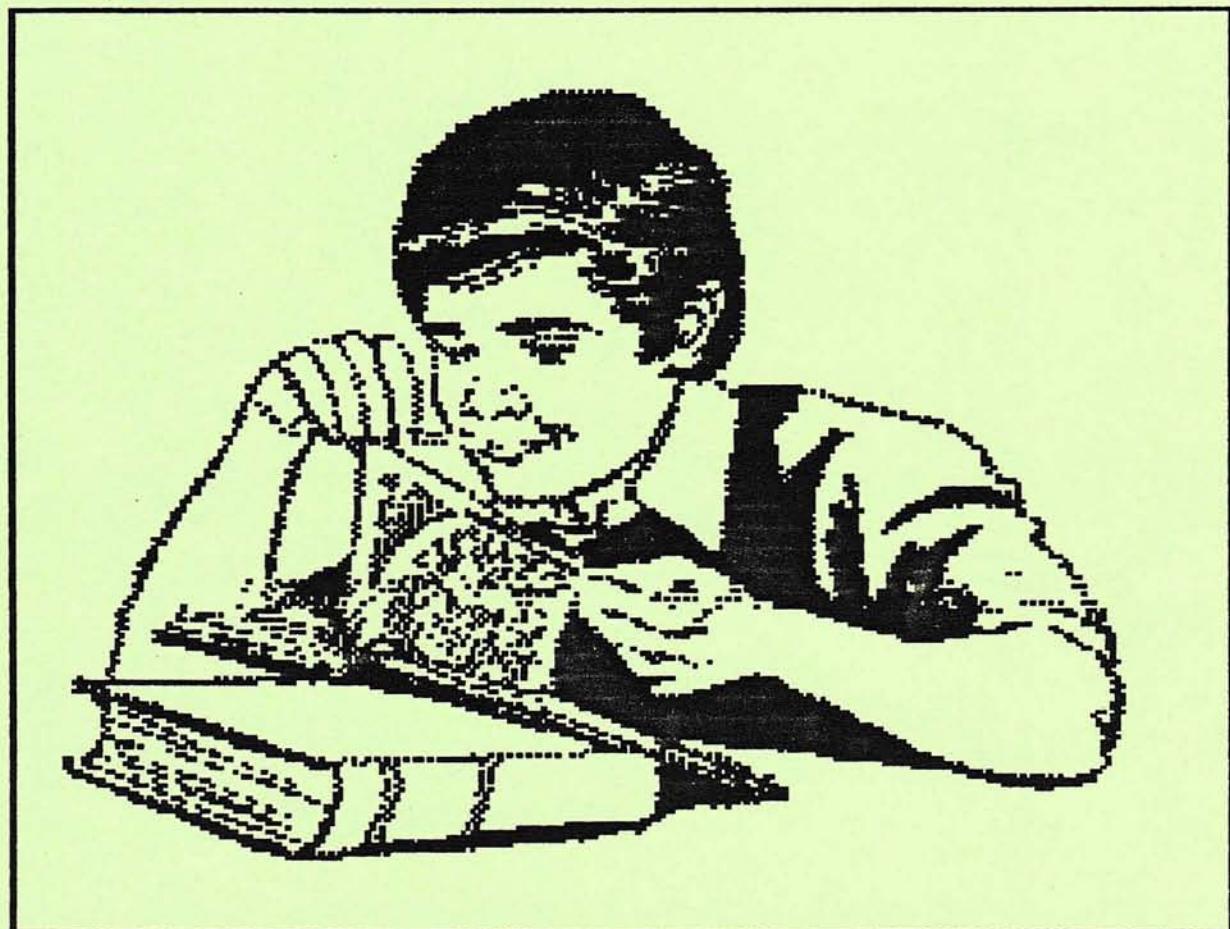
KEEPING PACE

PITTSBURGH ATARI COMPUTER ENTHUSIASTS

September 1987

Price \$2.50

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NOTICE

Keeping PACE is the official publication of the Pittsburgh Atari Computer Enthusiasts. If you enjoy Keeping PACE and would like to receive it regularly you must do one of two things:

1) Become a dues paying member by filling out the form in back of this issue and by sending a check or money order to PACE at the address on the form in the amount of \$20.00 (per yr./family). Membership is open to individuals and families who are interested in using or programming Atari personal computers. Membership includes the subscription to this monthly newsletter, access to the club's disk library and to all club functions and discounts.

2) If you are an Atari User Group you will continue to receive Keeping PACE if we receive your newsletter on an exchange basis at the address on the form. Also we are interested in exchanging Disk Libraries of PUBLIC DOMAIN PROGRAMS.

NEWSLETTER ARTICLES:

Please submit all articles on disk to any of the PACE Officers. Articles may also be uploaded directly to the Editor (412)-941-4107 or the P.A.C.E. Bulletin Board (412) 963-1355.

PACE accepts articles for publication in a variety of formats. Articles may be submitted anytime but will probably not make that month's newsletter if submitted less than two weeks before the regular meeting date. Text files on single sided ST disk and uploads to the PACE BBS are the preferred means of submission.

Due to limitations placed on the use of the meeting room, any retailer wishing to sell products at a P.A.C.E. meeting must register with the President or Vice President one month prior to the meeting. Stipulation for such sales will be explained and will be adhered to. PACE reserves the right to limit space to retailers and others at all meetings.

NEWSLETTER STAFF:

PROGRAM STAFF:

Program Director Diane Molnar
8-Bit Librarian Wayne Sigmund
16-Bit Librarian Jerry Cobbs

OFFICERS

President : Lanny Shoup
Lovi Road
Baden, PA 15005
(412) 869-7813

8-Bit Vice Pres: **Dave Carey**
102 Washington Ave.
Evans City, PA 16033
(412) 538-3646

16-Bit Vice Pres: Rick Gierl
2405 Springwood Dr.
Glenshaw, PA 15116
(412) 486-9507

Treasurer: Joyce Thompson
330 Rolling Hills Rd.
Freedom, PA 15042
(412) 728-4756

Secretary: Debbie Ayres
344 Church Street
Bridgeville, PA 15017
(412) 221-1307

Editor: Martha L. Dycus
341 Carmell Dr.
Upper St.Clair, PA 15241
(412) 941-7834

8-Bit Librarian: Wayne Sigmund
212 Woodland Ave.
Glenshaw, PA 15116
(412) 486-2734

16-Bit Librarian: Jerry Cohbs
233 Smokeywood Dr.
Swissvale, PA 15218

Sysop: John Babson
106 Berwick Drive
Pittsburgh, PA 15215
(412) 963-6180

16-Bit At Large John Satriano
 969 Edna Street
 Bridgeville, PA 15017
 (412) 221-8933

8-Bit At Large William Covert
 2621 Tilbury Ave.
 Pittsburgh, PA 15217
 (412) 421-6008



PRESIDENT'S REPORT
by
Lanny Shoup

Welcome to all the new members of PACE.

If any member has any questions about the club, Atari, or any related items please feel free to let me know. You can drop me a line through our BBS, or our Post Office box, or phone. Any suggestions to help us provide you, our members, with what you are looking for in the club are always welcome.

This will be your last month to receive ACE money for new members. The PACE money offer will end September 30, 1987. Let's all make an effort to bring a new member in this month.

I'd like to make a special thank you to all members who have already taken the time and effort to bring in new members for PACE.

A new operating system for the Atari ST called IDRIS 3.11 may be a sleeper for Atari. This operating system is a UNIX work-alike. With its multi-tasking ability it may be just the ticket to help push the business community from viewing the Atari ST as a toy.

We are looking for new eight bit programs to demo. If anyone has any they would like to show, please see me or Dave Carey. Any older programs that haven't been demonstrated for a while are also welcome.

A new concept for a pay BBS has been introduced to us by Computalk TCS of Ft. Worth, TX. They have been in business for six years for Atari owners. They provide the following services:

Downloads - 8 & 16 bit
E-mail
Nine online adventures
Users' forums
CB simulation

You have the opportunity to try this BBS for one month free. After the one month there is a \$10.00 monthly fee for the user group. This fee is usually \$15.00 a month. There is no sign up or hourly fee. They

have 6 phone lines, run 24 hours a day, 300 or 1200 baud, and can be reached through PC Pursuit.

To log on:

- * Set at full duplex
- * Set baud to 300 or 1200
- * Call (817) 589-2588 (area code (214) when using PC Pursuit)
- * Remember this is long distance to Texas
- * Computer will respond "Welcome to COMPUTALK TCS, hit (RETURN)"
- * Our ID# is 2500
- * Our password is USER/200

This offer will expire 9/18/87

The Boston Computer Society will be holding an Atari fair on October 9, 10 and 11 at the Centrum in Worcester, MA. They are expecting 10,000 in attendance and 87 booths.

The Washington (NOVATARI) have changed their October 10 fair to fit Atari in. They have also changed their location. Both the dates and the location are unknown to me at this time.

Well, that's all for now. See you in September.

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BOARD CHECK
by
John Sabson

This month I went to Cape Cod for vacation, and while there I was able to meet with two user groups and exchange library disks. I met with Cam Laing and Tom Arena of the M.E.N.A.C.E. (METro Network Atari Computer Enthusiasts) user group in Waltham, Massachusetts. They are primarily 8-bit based, and Tom is particularly interested in AMS and Midi music programs. I met with these same people last year, and this is how we got many of the AMS programs in our library. Tom now has over 800 different AMS files, and now we have even more to add to our library. All told, I got about 10 disks full of 8-bit programs and, hopefully, many are new to our group. If anyone in the group is interested in AMS/Midi programming

on the 8-bit computers I suggest you contact Tom. He is an accomplished musician and 8-bit programmer. Let me know and I will give you his address or phone number.

I also met with Alan Glick and David Scheibley of J-BUG. J-BUG is putting on the Northeast Atari Computer Faire in Worcester, Massachusetts on October 10 and 11. They are expecting to have over 3000 attendees and have already signed up 11 vendors. They are planning a show many times larger than ours and are getting help from A.N.A.L.O.G. and others. It looks like they have their act together and are going to have an excellent show. J-BUG has about 600 members and an excellent 16-bit library for the ST. We swapped disks and I came home with 26 ST disks full of many programs that we have not seen.

It will take a while for our librarians to sort out the best of all these new programs and put them on library disks. I will be putting some of these new programs on the BBS as soon as I can, also. We now have nearly all 20 megs of our hard disk on the BBS filled with 8-bit and 16-bit programs. While we are looking into the possibility of economically increasing the capacity of the BBS, I will be removing some of the older programs on the BBS to make room for the new programs. Any suggestions as to programs you would like to see on the BBS (or removed from the BBS) will be helpful.

I am also trying to set up a program whereby we exchange programs with the Sysops of other Atari user groups to maximize the amount of quality public domain software in our library and on the BBS. Nonetheless, if you have public domain programs, please upload them and share them with our other members.

LOOK

MEMBERSHIP DRIVE UPDATE

by

Joyce Thompson

We've been doing very nicely in the Membership Drive. The tally of new members: May - 3, June - 6, and July - 4. That's 13 new members!! Good going all of you sponsors! We also had a number of renewals: May - 5, June - 9, and July - 9... And that's 23 renewed members. That's real good, also.

The membership drive extends through the end of September, so you still have time to bring a friend in to join up. Remember, if you as a member sponsor a new member you will receive \$5 in PACE Money. You can use

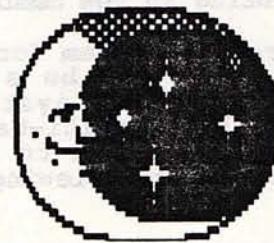
PACE Money to buy library or blank disks or raffle tickets and to pay dues. Don't miss out on saving money.

FOOTNOTE: Just as a reminder to those of you members that need to renew...The Board's decision at the beginning of the membership drive included not ZAPPING any member during the drive, from 5/1/87 to 9/30/87.

Now, anyone who has received one of my cute postcards knows what ZAPPING means. I first send out a reminder-to-renew postcard and then give you a month or two. The next postcard you would receive would be my postcard starting with "Dear Former PACE Member". I hate sending those, because in between the two postcards I have had to ZAP that member. ZAPPING occurs 2 to 3 months after your membership expires. We give you this grace period hoping not to lose a member and friend, but eventually it must be done.

So, I just want to remind any member that needs to renew (check your status on your mailing label), please do it by the end of September, because ZAPPING will begin again in October. Renewal postcards will be in the mail shortly. Please...renew now and save me from ZAPPING you. I really don't like to ZAP anyone.

Joyce Thompson
Treasurer and Membership Director



FLYING HIGH WITH ATARI

by Italo Gavazzi
reprinted from High Sierra Users Group
Journal, June 1987

Recently, being an amateur astronomer, I attended the Riverside Telescope Makers Conference in southern California. This annual conference is a great place to see the latest trends in amateur astronomy. One of the most interesting innovations was the use of an Atari 800 to control the movements of a home-made telescope by means of stepper-motors. The program was written BASIC. The co-ordinates of a star or celestial object were fed into the computer--and, presto--the telescope pointed to the object in the sky. Now, there's a practical application for computers that interests me.

REVIEW OF REGENT BASE

by Serge Vaillancourt
 reprinted from Michigan Atari Magazine,
 July 1987

REGENT BASE just became the fourth database that I have used (or tried) on the ST. The first was the obvious DB MASTER ONE, given to me with the purchase of my 520ST. Even though it used the GEM features, it quickly found its way into my "archives". Not that it was unusable, but mainly because it didn't match my needs. The second was H & D BASE. This one is close enough to a professional database and what's more, it is very similar to DBASE II that is so well known in IBM circles. Not bad, but the first versions were buggy. DB MAN is the third, a DBASE III clone. "Now, here's something interesting," I said to myself as I adopted it.

The first things I look for in a database are:

- Ability to work with many databases simultaneously;
- Inter-relation capacity between databases;
- Ability to create procedures;
- Printed output format editing and designing;
- Possibility of saving variables.

DB MAN satisfies all these requirements. REGENT BASE is not as flexible but nevertheless includes a good portion of these features. AND it's much easier to use.

On the plus side, REGENT BASE runs under the GEM environment and even the user created databases can make use of GEM (mouse button). REGENT BASE then allows for a better screen layout and a much improved working space for the end-user.

Another plus for REGENT BASE: it has its own integrated text editor. With DB MAN, we have to use a separate editor. To run a program or procedure, one must load DB MAN in memory and then run that program or procedure. If there was an error, you have to load the editor, make your corrections, re-load DB MAN, re-run, etc... With REGENT BASE, after you've written the program or procedure, you can call the processor and run the program immediately. In the case of an error, REGENT BASE brings you back to the editor with the cursor resting on the mistake.

REGENT BASE is sold with a 163 page manual in a 9" x 8" binder, which is very convenient with an inside pocket where you find the REGENT BASE diskette. The diskette contains the REGENT BASE programs as well as two complete applications that may be used as tutorials, but since they're so good, they will be very practical for some users.

The manual is split between three chapters and the index.

The first chapter called "GETTING STARTED" gives the information needed for a first run of REGENT BASE. It also contains a mini-manual for each one of the applications included in the package.

The manual is written in a reference book form (except for the first chapter) and those looking for a tutorial in the book will be deceived. People who have never used a database will have to read certain passages a few times and maybe even look for other information sources. But in general, the various items in the manual are clearly identified and you won't need to look around for a day and a half to find a desired passage.

The FORM EDITOR allows you to create or modify the database templates and the commands needed to activate it. The FORM EDITOR is made of two parts; one for creating fields and for the screen presentation, and the second which is nothing more than a text editor used to create the programs and procedures.

The first part is called the GEM OBJECT EDITOR and is used to create the design and the contents of the file. There are drop menus containing the various editing tools such as CUT, PASTE, the file manipulations, LOAD, SAVE. A sub-menu for designing the screen output contains the text effects and colors tools. Another sub-menu allows you to move between both parts of the FORM EDITOR.

The fields are edited with the help of the mouse to select the type of field (by clicking), position the field (by dragging) and to select the width of the field (by stretching the field's box).

CONCLUSION

If I compare it with my preferred database program (DB MAN), I can say that REGENT BASE lacks a bit of flexibility, meaning that DB MAN has a much larger language and is therefore capable of more detailed processing. However, I'm attracted by two things in REGENT BASE. It supports GEM in its working tools and also in its applications, and even though its language is less evolved than DB MAN's, it is no less efficient and easy to use.

Consequently, I don't think I would be making a mistake by saying that the casual users have enough power to work with in REGENT BASE for their personal management. It might even be powerful enough for various professional users.



MAIL ORDER MONSTERS

review by Douglas Kelley
reprinted from LA-ACE, August 1987

Mail Order Monsters is one of several games just released for the 8-bit Atari by Electronic Arts. For a long time, EA has not made games for the Atari line, but due to a lot of pressure from software stores and consumers, they have begun again.

Upon opening the package, there is (of course) a disk and the manual. The manual is very easy to understand and will guide you step by step toward creating your monsters. When the disk boots you are presented with a nice title page and asked how many are playing (player vs. computer or player vs. player) and what level (beginner, intermediate, or tournament).

In the Beginner game, you choose one of 12 pre-generated monsters (called "morphs"), and you give it a name. The morph is then taken to the Battlefield for a battle to the death with the opponent (the morph the other player or the computer chose). This level allows you to experiment with changing weapons and (of course) combat.

The Intermediate level allows you to build your own monster. You are given 500 units of money (called Psychons) to build your creature. You choose one of 12 basic forms - ranging from a worm to a human to a dinosaur - each with its advantages and disadvantages and cost. From your remaining money you buy your morph weapons, rounds for the weapons, food and energy. When you think your morph is ready, you send him/her/it to the Battlefield (if you have 2 players, you then wait for the other player to make his selections). The Battlefield here is a little different. Player 1 gets to choose from three different contests (described later), and player 2 - or the computer if it's a 1-player game - chooses from 16 types of terrain (artic to desert). The combat then begins.

The Tournament level is the hardest, but possibly also the most fun, especially if you have a lot of friends who like to play this game. In this level, you get to make an "owner" disk, and save your morph for

future battles. You only get 250 Psychons to start, but you earn more (to upgrade and repair your morph, or even buying new morphs) by winning battles. The Battlefield is the same as Intermediate, with one addition: each player can choose one rule for the game, such as "no surrender" or "no gas attacks". You can, of course, make back-ups of your owner disk.

The Battlefield has three different types of combat: Destruction (the two morphs battle to the death), Capture the Flag (kill the opposing morph or find and touch 8 flags scattered around in a particular order), or The Horde (the two morphs join forces to destroy a bunch of computer controlled Hordlings - the winner being the Morph that kills the most). Beginners can only play Destruction, otherwise you get your choice. When you are first deposited onto the Battlefield, you find yourselves on the "big map". Your position and your opponent's (and the Hordlings if you are playing that) are shown as dots. You maneuver your morph with your joystick, and when two dots come together the screen expands to show the two of them fighting. Now, you can see your creature in fairly good detail, and you control what it does with your joystick. Depending on certain qualities of your morph, you may attack the opposition only every so often, and when you do get to attack, the characteristics determine if you hit and how much damage you do.

In general, I like this game, but it does have a few disadvantages. The game does a lot of disk accessing when you are building your morph and equipping it, and since the disk is copy protected, you can't make a copy to protect the original. In combat, moving around on the "big map" is very slow, although once in close-up combat it gets pretty fast. When you are playing human vs. computer in the Hordling contest, if the computer meets a hordling, you have to sit around and watch the computer fight itself. In the other games there are "wandering monsters" and in Capture the Flag each flag is guarded. When the computer player runs into them, you do get control of whatever it's fighting, though.

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CLOSE ENCOUNTER WITH THE MEGA ST4

by Maurice Molyneaux
L.C.A.C.E., July 1987

We've ALL been waiting what seems like forever for Atari to finally get its MEGA computers out the door. They were announced in January (seems like longer back, though), and only now does absolute proof of their existence appear to mine eyes in the form of an actual unit! Not only did I get to see one (Mega ST4) in the "flesh", but I got to sit down and play with it for quite a while.

In fact, I ran something like 10 programs on it. My thanks to Neil Harris of Atari and Rod Coleman at Cimmaron Computers in Reno, Nevada, for the opportunity to play with this long sought machine. (Now, DON'T go calling Cimmaron and expect to order one, because as of this date - July 12 - they don't have them yet. The one I saw was there for a special event and went back to Atari HQ several hours later.)

THE SYSTEM UNIT

This hasn't changed since the photos we've all seen. The main unit is a box, about 13 x 13 inches square and about 3 inches tall, with a double-sided 3.5 inch floppy drive in the front of the machine to the right. Interestingly, all systems lights on the unit I saw were GREEN. No red LEDs. The right side of the unit is blank, though the left side has an opening which reveals the connector for the keyboard cable just forward of the cartridge slot. Around the back of the unit are all the usual ports, and one interesting hatch, arranged as follows ("R" is the RESET button):

| | | | |
|--------------------|---------|----------------------|-------------------------|
| ON/OFF | POWER | PROCESSOR BUS ACCESS | ATARI |
| ^A MODEM | PRINTER | MIDI | MIDI MONITOR FLOPPY DMA |

The interesting hatch is, as we've all been hoping for, an open line to a connector which gives access to the FULL 68000 bus, thus permitting simple memory expansion, and even the possibility for carrying the bus OUTSIDE the ST to where things like card slot equipped expansion boxes, multifunction peripheral boards, etc., can be added. Next to it, where I typed ATARI, is a small nameplate, which one magazine claimed was where a second DMA port could be added. I do not know if this is true. Finally, the Mega has a very quiet internal fan and a built-in battery backed up clock. I'd forgotten about the clock, but when one of my disks auto ran a program to read the clock, I was surprised to see that it worked.

THE KEYBOARD

This is nearly the size of a 520ST, though slimmer and MUCH lighter. The keyboard is connected to the system unit by a cable which connects in a notch under the back left corner of the keyboard, which is where port 1 (joystick) is also located. The mouse port (0) is in a notch under the center of the back of the keyboard. There is a narrow "channel" for the mouse cord to follow, leading out the right side of the keyboard. If you are left handed, you simply ignore the channel, lead the cable out the back of the notch, and it will easily go around the left side of the unit. These ports are much easier to get at than those on the 1040ST! The keyboard also has two flip out panels on its bottom, which are used to tilt the keyboard toward you. When closed the keyboard lays quite flat. As to

the keys themselves, they don't look any different, but they definitely ARE much tighter. It's not nearly so easy to trigger a key by brushing it. Even the function keys don't feel "mushy".

THE NEW TOS/GEM

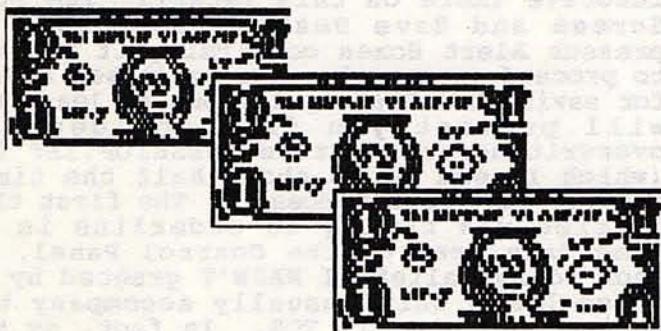
Perhaps "improved" is a better word. The Desktop looks just like always. Same old stupid icons. The menus are the same, with the exception of the Options menu, where at the very bottom is an option called "Blitter"! If a check mark appears next to it, the blitter chip is ON, if not, it's inactive (more on this later). The Print Screen and Save Desktop functions now present Alert Boxes confirming if you wish to proceed or cancel. You can't set a drive for saving the Desktop to, but at least this will prevent you from accidentally overwriting your current DESKTOP.INF file (which I seem to do about half the time I aim for "Set Preferences"). The first thing I tried was typing an underline in the time/date area of the Control Panel, and much to my relief, I WASN'T greeted by the three bombs which usually accompany this action with the old TOS. In fact, my best efforts proved insufficient to crash this machine. No file or I/O error I created caused a bomb. Hopefully, this is a good sign. Neil Harris stated that the text handling routines had been overhauled, and even sans blitter, the text in windows seemed a bit quicker scrolling. Further, holding down the left mouse button when clicking on a window's scroll arrows or the gray areas of a scroll bar will result in an auto-repeat scroll. No more multiple clicks to scroll through a window. 1st Word benefitted from this, and when the blitter was engaged, seemed faster at going from end to end in a large file.

THE BLITTER!!!

I have been DYING to try this out for ages! Anyway, it's present in the Mega, and, by golly, it DOES work! On the Desktop it seems to speed up window fills and screen redraws, though it's hard to tell. The "pop" of appearing and disappearing windows is the same, though I imagine that's because the routines are timed to one of the system clocks. Many users have voiced worries that the blitter would cause some of their programs to go crazy with speed. I found this shouldn't be much of a problem. I tested Starglider, Star Raiders, Crystal Castles and Battlezone, and all ran as always. Apparently, they too monitor system clocks, and are unaffected by the blitter. Maybe you're disappointed by not getting to play Star Raiders at Warp 45, but it keeps the games playable. However, the best example of the blitter at work was when the good old NEO Bird demo was run. If you have it, run it, and notice how fast the cockatoo goes. Now, Imagine him going between 4 and 5 times that speed and you can imagine what

the blitter can do. Why, that chip could potentially make even the Aegis Animator ST's jerky cell animation halfway presentable!! Shiny Bubbles and FujiBoink! showed no difference in speed. The system default is for the blitter to be "on", although Neil Harris told me that if a DESKTOP.INF file were present on my boot disk the blitter would be disengaged. I imagine that Save Desktop now saves the status of the blitter as well, which could be indicated with a single bit for on or off.

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NEW FCC RULING AFFECTS YOU, TOO!

by Jim Stokes
reprinted from RAMBANK, Vol. 4 1987

Recently the Federal Communication Commission has proposed to establish an access fee for packet switching networks (in Lancaster, Tymnet and Telenet). What this means is that the cost of accessing Compuserve, the Source, Delphi and Genie will dramatically increase. The new regulation is expected to raise the cost of using Tymnet and Telenet from \$2. to \$7.40 an hour. This means after the new fees are installed the cost of using Delphi will jump to \$13.40 and the cost of Compuserve will jump to \$20.15 an hour. EVEN IF YOU DON'T OWN A MODEM THIS NEW REGULATION WILL HAVE SOME EFFECT ON YOU since this is where much of our public domain programs come from. The people who download this material will need to cut back on the amount of time they are on-line and so there will be fewer submissions to our club library.

WHAT IS A PACKET SWITCHING NETWORK?

What a packet switching network does is allow you to access a database in a distant city without paying long distance phone charges. Instead you pay the service you are using an additional \$2.00 an hour which they turn over to the packet switching network you have accessed. For Example, to use Compuserve you dial the local Telenet number, type CIS (for Compuserve Information Services) and you are connected to CIS. You pay \$12.75 (1200 baud) an hour for CIS and

you pay them an additional \$2.00 which they turn over to Telenet.

The packet switching network rents these lines from the phone company and is able to pass the cost on to thousands of computer users because data transmission requires a narrower bandwidth on a telephone line than voice transmission. Up to a dozen data transmissions can be multiplexed on a single line that can carry only one voice communication. When you are connected to a database and type something on the keyboard, the packet switching networks computer collects the data from you, gives it a source and destination number and sends the packet on via the most direct route that's open; the next block of data you send may take an entirely different route (that's why databases are sometimes slow to respond to your input...on a busy night the data may travel halfway around the country before it reaches its destination). All this is done to ensure the maximum use of the phone lines while you are pondering what to do next.

The new FCC ruling, which will go into effect on January 1, 1988 will charge packet networks the same access fee that long distance carriers like Sprint, MCI and ATT pay to the local telephone company. In the past the FCC had exempted data transmission networks from this fee (and some still are) but now they feel that to continue the exemption would amount to a subsidy of these networks at the expense of the average telephone user.

There are two points to be made against the FCC's position. The first is that while they discontinue the exemption for packet networks (and indirectly modem users who will absorb the higher cost) they continue the exemption for large private networks like those run by the Ford Motor Company and Boeing Aerospace even though they make use of the same local telephone lines. The second point is that since up to twelve data transmissions can occupy a single phone line, the local phone company will be collecting up to 12 times the revenue from packet switching networks that they collect from voice transmission. Clearly, the new FCC regulations should be modified to charge on a per line basis rather than a per user basis, so that 12 users on the same line are not paying the same per hour fee (\$5.40 per user or \$64.80 per line) as a single user on a voice transmission line.

The Chairman of the FCC, Dennis Patrick, claims that exempting the packet switching networks amounts to a subsidy at the expense of the average telephone user, but the FCC has also stated that the access fee should decline in a few years as the agency increases residential charges for connecting to the telephone network. So the question remains just who is subsidizing whom?

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- SOFTWARE SEARCH

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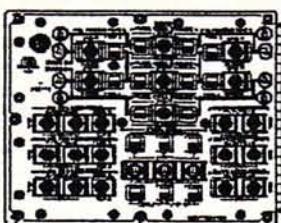
P.A.C.E. MEMBERSHIP DRIVE
May 1 ← → SEPT. 30

All current members (based on published membership list found in the March newsletter) are eligible for \$5.00 PACE MONEY for each new paid membership obtained. When you fill out your new member's application remember to add:

Sponsored by (your name) .

PACE MONEY earned may then be used by you to buy disks or raffle tickets or to apply to your dues.

Pass members whose dues have expired since Dec. 1, 1986 and
your own renewals are ineligible.



PC BOARD
DESIGNER
by Paul Machiavenna
reprinted from JACG
June 1987

Are you into electronics as a business or a hobby? Do you design and build circuits? Do you layout your own printed circuit boards? Well, then here is a software package written just for you. PC Board Designer (PCBD) is a professional computer aided design package for the Atari ST line of computers. Using a computer for the tremendous task of designing PC board layouts has been around for quite some time, but it was only available on very expensive machines. Abacus software has changed that by bringing us the PCBD. They state in the user manual that they chose the Atari ST computers for this software because of the great power available. My experience in electronics taught me just how tedious it is to layout even the simplest of PC boards. So, with that in mind and a great machine like the ST at my fingertips, I shelled out over a hundred bucks for the PCBD and this article tells about using the package.

In using a computer for PC board layouts, you input a list of all components in a circuit and the connections to be made.

Then you place the components on the desired board size. With PCBD you can usually stop there and let the program do the rest. What I am referring to is Auto-Routing, the most powerful feature. Auto-Routing is where the computer itself places the traces on the PC board layout. The traces are the physical connections between the components. I have seen several PC board designer programs available for the IBM and Apple computers which cost well over \$500 and they don't include this feature. Those programs are nothing more than CAD programs which require your making all the routes of the traces. This is not so with PCBD as I mentioned above. Manual routing is, however, also available in case you are not satisfied with the route of the trace made by the Auto-Router.

All components used on the PC board must be part of a disk library file. Abacus supplies a file with most of the commonly used ones. A separate program is on the main disk to enable you to define components which are special to your needs. You simply create a totally new component or modify an existing one and save it to disk. The library file contains all graphic and pinout information about each individual component. The graphic is what you would see painted or inked on any professionally produced PC board. Once you have listed all the components you are ready to input the connection list.

The connection list is what informs the program how the components are to be connected. For example, pin 1 of IC3 is connected to pin 8 of IC1, and so on. When entering the connection list the computer will alarm you if you are trying to make an impossible connection. This is when you enter a component not on the component list, or if you specify a nonexistent pin on an IC chip. What you must be very cautious about is that you don't enter an incorrect, yet legal connection. The program is not able to recognize that you entered a connection different from the one made on the schematic.

Once the connection list is complete it is time to actually place each component on the PC board. The PC board is shown on the screen in perfect scale and size as defined by the user. In this mode you really get to see the power the ST has underneath its cover. Let's say we are to position a 40 pin IC chip on our board. On the screen we see the IC graphic as well as every connection made to it going to other components. Each line coming off the IC is in 'rubber-band' mode as you move the chip to desired location on the board. With this many lines coming off a component it looks like a Man O'War crawling across the screen. What is truly amazing is just how fast you can move the chip across the screen and also change its angle of degree without any screen flicker. So, component placement is fast, easy, and not hard on the eyes.

Now that you have input all the required data in the form of a component list, connection list, and board placement, it's time to sit back and watch the computer do the hard part -- Auto-Routing. You see each connection being made on the screen as you think to yourself, 'Would I love to see the algorithm for this!' The Auto-Router is very fast. Soon after you start the process you will see a complete and perfect PC board layout of the schematic circuit you entered. At this point it is a good idea to save the lists and the PC board design to disk. This way should you ever need to modify the design you won't have to enter all the components and connections all over again.

PCBD produces very well detailed hardcopies of the PC board layouts as well as a component layout picture suitable for transferring to the actual PC board. Remember that you now have to etch the PC board itself. The hardcopies are useful for snapping a picture of the layout and using photo sensitive copper clad boards for the design transfer. I have used two different printers for my layouts; an Epson FX-85 and an Epson LQ-1500. The results from the FX are good, but the LQ is fantastic. Each trace on the LQ is well defined with a minimum of 'fuzziness' associated with most dot-matrix printers. There are also drivers for plotters.

PCBD has a wealth of other important features as well. Barriers can be created on the board to prevent the Auto-Router from using those areas for traces. This is good when you need room to drill a hole for mounting the board in a project case. The router can be used to create ground planes for RF projects which are sensitive to EM radiation interference. The Auto-Router will not always be able to make all the connections requested. Two major factors which dictate whether or not a connection can be traced are: a) placement of components on the PC board; and b) the order in which you entered the connections. Fortunately, PCBD allows you to change both circumstances easily. If you need to move a component you simply highlight it with the mouse pointer and move it anywhere on the board. When you highlight it the rest of the components are changed to the familiar GEM ghost image and the name of the selected component is shown in a window on the screen, so that identification is easy. If you feel that the order of your connections is preventing the Auto-Router from completing all of the traces, you can request that the program will change the order automatically. This removes the tedious task of having to edit the entire connection list by hand. Some more features of PCBD are choice of trace thickness, 45 or 90 degree angles of the traces, single or double-sided boards, just to name a few.

With all the good PCBD does for the user, I hate to mention the bad points. The most serious drawback to this program is the maximum allowed board size. It is limited to approximately 6.5 by 4.0 inches. For a hobbyist this may be all right for most applications, but for commercial use this is simply too small. I have been forced to split up a board into two parts to accomodate this problem. But, multiple boards used where one would do is more costly and definitely not favorable even from a designer's point of view. Beware that if you are using an 80 column dot matrix printer you even have to limit yourself to a smaller size. This is because the FX80 and similar dot matrix printouts are produced in a 2:1 ratio. Therefore, the layouts are printed in twice the actual size. This is done so that the resolution will increase when reduced. Another drawback is that you can only use component identification names such as R10 up to 99. When I label components on a schematic I like to use numbers like 102 or 320 to easily distinguish between different sections of a circuit. Finally, note that you may run PCBD only on the ST Monochrome monitor.

Okay, being too critical is no good, but what burns me up is the fact that Abacus is no longer going to support this program. That's right, they released the PCBD along with some printer/plotter drivers and that's it. But, before I bought the program I

spoke to Abacus about the board size limitation and they assured me that an updated version was near completion. So, I spent \$130 and now I feel as though I'm stuck. I hereby ask anyone who uses this program or who is thinking of purchasing it to please contact me. I hope that with the support of more people showing Abacus that they shouldn't just leave a program to waste, we can persuade them to consider an update to the program. I guess not all software vendors can be as supportive of their users as the guys at OSS.

Despite the drawbacks, I have found the PCBD to be a great time saver and I still recommend it to any Atari ST owner who builds their own hardware projects. I would appreciate any interested club member giving me a call concerning the above problem. My phone number is (201)-687-3878. Please call only between 11 am and 10 pm anyday. Thank you!

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BBS'S I HAVE KNOWN
by David P. Pennekamp
reprinted from CIN'TARI Online Magazine,
June 1987

THE DIVING BOARD For new users who like to jump right in, regardless of any knowledge of proper procedure.

THE IRONING BOARD For harried housewives.

THE WASH BOARD Closely related to the Ironing Board.

THE PAROLE BOARD Run by convicted pirates.

THE EXPANSION BOARD Always promising to get bigger and better, but with no results.

ROOM & BOARD Run with information on new places to live after one's spouse throws one and his computer out on the street.

BOARD OF DIRECTORS This one has about 3 Sysops, 12 Assistant Sysops, 32 Jr. Sysops, and 2 actual users.

CHAIRMAN OF THE BOARD What each person listed in the previous thinks his title is.

THE KEYBOARD We haven't figured the one out yet. It looks like a war between bunch of word processing freaks and computer music enthusiasts.

THE SOUNDING BOARD Where one's opinions can be expressed even if no one wants to hear them.

BOARD OF EDUCATION Consists mostly of tutorials, documentation, instructions, etc.

THE BORED BOARD Nothing EVER happens here!

THE SKATE BOARD Appeals to the younger, more mobile user.

OVER BOARD This one has so many introductory graphics, messages, and plugs you use up half your time just getting to the menu.

THE SURF BOARD This one's a lot of fun... Only thing is, it's located in Hawaii... Can you say "Aloha!!" to your paycheck as it goes off to the phone company? Sure you can...

THE RUNNING BOARD BBS for collectors of old cars, with a sub-board for joggers. -

BOARDWALK Pay board with a \$400 access fee. And that doesn't do you any good without access to Park Place BBS. (Access \$350)

THE DRAFT BOARD Used by Syacp to get users involved in his pet projects.

THE DRAFTING BOARD The most intelligent, well-run board so far. Run by raftsmen for the betterment of mankind. (Guess what the author does for a living...)

THE GAME BOARD On line games, more on line games, and when you're done with the on line games, you can play some on line games!

BOARD OF INQUIRE You have to pass two oral exams, a special sub-committee hearing, know 3 of the directors, and sign sworn affidavits before you can get access.

OUIJA BOARD I'm not sure who these guys are telecommunicating with, but they're really out there!!

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CHOOSING A COLLEGE?
reprinted from Mile High Magazine, May 1987
via The W.A.N.D., June 1987

The Perfect College
Mindscape Software
\$19.95

The Perfect College is a database program with more than 440,000 facts about 650 accredited four year colleges and universities around the country. The program lets you choose up to 26 criteria, such as cost, major studies, location, student/faculty ratios, and much more. If you, or someone in your family is college bound this fall, check out this program.

DBASIC UPDATE

DTACK GROUNDED has sent two updated versions of their DBASIC program since the original.

Bring your original disk to a meeting and receive the latest update free!

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SHANGHAI - A REVIEW

by Jim Woodward
reprinted from The I/O Connector, July 1987

This game is based on Mah-Johngg, an ancient Chinese tile game, and it isn't as easy as it looks. The folks at Activision have put together a really nice little package, with a few minor exceptions.

The object is to find pairs of identical tiles and remove them from the pyramid (five high in the center) in which they are stacked. They are always in different places, thanks to the computer's ability to do random things, 144 tiles. Are you up to the challenge? There are 12 Dragon tiles, 16 Winds, 4 Seasons, 4 Flowers, and 108 Suit Tiles, either Dots, Bams (bamboo), or Craks (characters or actors). They are laid out in a pyramid called a Dragon.

The object is to remove pairs, but that is just part of it. They may only be removed if they can be moved left or right, not up or down. And then, you must make sure that they are on a level which allows them to be moved; then use strategy, think several moves ahead. What will happen if I move this tile?

The game allows for solitaire play against the computer, as well as teams competing against each other, in a tournament; or you can challenge a person against the clock. Any game will get the adrenaline flowing. The game also makes good use of the GEM menu bars to restart games, give help, hints and remind you which tiles are which.

I'm not the biggest strategy game player around, but I love this one. It is a very big challenge and very frustrating to find out that you can't move any more tiles. Your strategy didn't work, so you just go to the GAME menu bar and start all over. There's nothing else to do.

My only complaints are that the title screen should have sound, to add to the effect. The sound effects should be much better (they consist of the standard ST fading ding bell, which has been overused so much). And the graphics aren't the greatest.

But all in all, I recommend this program to everyone. Good luck, you'll need it.

**P.A.C.E.
BBS**

963-1355

**Message Board
Downloads
Announcements**

EASTER EGG

by Eli Tomlinson
JACG, June 1987

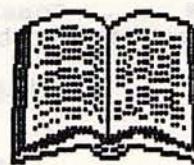
Mr. A. Phule of Berkshire has discovered an amazing backdoor which, it seems, is resident in all recent Infocom adventures. Starting with the Enchanter trilogy, if you type in the command SAY LIRPA at the input prompt the entire text will be dumped onto the screen page by page.

If you have a printer you can direct the output to it instead by using the command SAY LOOF, or SAY LOOF LIRPA to dump to both screen and printer.

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SEPTEMBER 1987

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| 13 | 14 8-BIT & REG MTG | 15 | 16 | 17 | 18 | 19 |
| 20 | 21 BD MTG | 22 | 23 NEWS DEAD- LINE | 24 | 25 | 26 |
| 27 | 28 ST SIG MTG | 29 | 30 | | | |



COMPUTERS IN SCIENCE
a magazine review
reprinted from LC.A.C.E., July 1987

There is a new publication on the newsstands titled COMPUTERS IN SCIENCE. This is a 96 page magazine initially to be offered quarterly. If you have an interest in science and computers this first issue is worth a look. The magazine is not slanted to any one brand of computers but rather gives fair coverage to IBM, Hewlett-Packard, Apple, Commodore and ATARI as well as discussing main frame applications.

The first issue includes features on using a PC to monitor lightning activity worldwide, gene sequencing and using spreadsheets to report chromatograph results. Columns on graphics and expert systems make fascinating reading. Reviews include Compaq Deskpro 386, Lab Master DMA, Exact, Measure, MathCAD and T3. The departments consist of Editorial, of course News, Images & Simulations and New Products.

Much of the reviews were for Big Blue software, however, considering the proliferation of IBM's in the business environment it is not surprising that much of the laboratory and scientific software is written for ATs and XTs. Of particular interest to Atarians will be the Graphics column. The article explains how Hydrogen electron orbitals are plotted and displayed using a 520ST and CAD-3D by Tom Hudson.

(continued on Page 13)

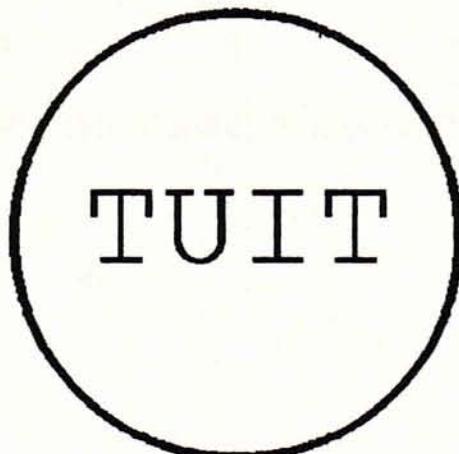
OCTOBER 1987

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COMPUTERS IN SCIENCE (cont. from page 12).

This publication is not for everyone as you may have gathered. Don't look for type-in programs or general news. If you have an interest in science, however, you will find the material contained between the covers both readable and stimulating. The price at the news stand is \$3.95 and I personally found it worth every penny. If issue two maintains the standards of the premier issue this publication should be around for some time to come.

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The above is for all of you P.A.C.E. members who keep thinking you will write an article for the newsletter when you get one of these.

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PARTYWARE

Hi-Tech Expressions
48K 2-Disks (Flippy-Comm)
Supports most printers

Review by Dave Holden
from THE SOURCERER'S APPRENTICE [sic]
Winter 1986

Like "PRINTSHOP" in many aspects, this program will allow one to print out banners and cards for different occasions. However, it differs in that it has prewritten text/graphics for most major holidays and a database option included to 'invite' a personalized guest list to a function utilizing an invitation you have created. It also prints up place markers, place mats, and even directions on how to play kids' games. In ease of use, I would rate this program above "PRINTSHOP" (it prints out much faster and the data merge is simple), however, one does not have the flexibility of using other graphics disks, at least to my knowledge. All in all, at a price of under \$15 it's a worthy addition to your library even if only used for those "emergency" occasions.

JINGLE DISK

High-Tech Expressions
48K Disk - Supports Most Printers

reviewed by Dave Holden
THE SOURCERER'S APPRENTICE [sic]
Winter 1986

This program, like others in the series, is very easy to use in printing out Christmas cards with a variety of graphic motifs or printing full page art with a personal message included. The graphics are cute and well done, not just icons! There is no database on this program, so you will have to do each card separately if you want personalized greetings. The disk opens with a very nice graphics/music "slideshow" which can be transferred to a personalized 'JINGLEDISK' Christmas card/disk to send to your Atari owning friends.

There are only two faults I have discovered so far: The input for messages was limited to 12 characters (not enough for 'Merry Christmas' or Happy Holidays') and, for some unexplained reason, the 'JINGLEDISK' option for formatting a new disk will not write to a Percom drive. (BUT it writes to an Indus!) At a price of under \$10, it's a nice stocking stuffer, and the authors also offer paper and envelopes in various colors and patterns to compliment your designs at reasonable prices (or see your retailer for smaller lot quantities).

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"HOT" PURSUIT

reprinted from ZMAG #43 3/16/87
via THE S.A.G.E. SCROLL, July 1987

Many computer users across the country use a service called PC Pursuit (henceforth referred to as PCP). Did you know that PCP has many functions that aren't stated in the users manuals or in the PCP newsletter? Most people who use PCP are quite familiar with the "ATZ" command and the "OK" prompt. Most people think that that's all PCP has to offer. WRONG! There is an entire section in PCP accessed by a single keystroke that can help you a lot!

By simply pressing CONTROL+E (for "E"nhanced?) and RETURN, you will see "HELLO: I'M READY". This is the doorway to the "extra" commands. Most of the commands you will never use, but many of them you will.

For example, to dial a number in "regular" PCP, you would have to type "ATDTXXXXXX", and then you would see either "CONNECT" or "BUSY". In the "Enhanced" PCP, all you have to type is "DXXXXXXX". Enhanced PCP will tell you what is happening by posting "DIALING...", and then either "BUSY!" (and return you to the command

prompt), "RINGING...", and/or "ANSWER TONE:ONLINE". It will also say such things as "CONNECT FAILURE" or "NO CARRIER".

Other features in the Enhanced PCP are redial last number (up to 9 times) and the ability to disconnect from a BBS on your side (very helpful when the BBS is running an Avatex modem which will not hang up by itself).

For a complete list of these and more commands, type a question mark (?) after the "HELLO: I'M READY" prompt.

To subscribe to PCP, you may call PCP's 24 hour online guide and signup BBS at 1-800-835-3001. Fee is \$25 per month flat rate. More info is available on the PCP BBS.

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HINTS by M.L. Dycus

Remember those little clear plastic envelopes that you DON'T leave on your disks because of static electricity? Well, DON'T throw them away!

They are the perfect solution to the problem of storing gold or silver chains

Just coil the chain, slip it inside this made-to-order clear envelope and put it in your jewelry box. They keep the chains tangle-free, dust-free, and in view, so they are easy to find. Try it, you'll like it.

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MIO MANIA: A PERSONAL REVIEW

by Doug Feldman (WAUG)
reprinted from Michigan Atari Magazine,
July 1987

After reading two very favorable reviews in Analog (March 87) and Antic (April 87), and seeing the big full page advertising, I could not resist. I decided to buy the MIO for my Atari 800XL. The first critical decision was which version to buy. The 256K MIO is \$199 and the 1 meg MIO is approximately \$325. Finally, I took the cheapskate approach. There is a big demand for these little wonders and ICD suggested that a mail order company or a local retailer may be able to supply one quicker, but I received it in little over a week.

My first experience after connecting it to the XL parallel bus and turning on the XL and the MIO was the horrible distortion of my video display. I have been using a 13 inch color TV (Zenith) all these years with respectable picture quality. But with the MIO connected, the picture quality was so distorted that I could hardly read the MIO command menu. For the next several days, my primary concern was trying to remedy this situation. Mike Olin told me that all was well with his MIO and XE using a home TV. ICD said they had primarily tested the M using monitors connected to the XL and XE. I did verify that the MIO and XL do send a very clear picture using a video monitor. From among many of the suggestions I collected over the next several days, one idea from Tim Grzechowski seemed to help the most. I have taken all the slack wire in the video output cable and wound it around an empty paper towel holder. This creates a kind of RF interference filter. Furthermore, I discovered that the exact placement of the video cable and the proximity to the telephone cable also play an important part of the overall picture quality. I have described all this in extensive detail because the problem is very disturbing!!!

After two weeks of exploration, here are some of my discoveries using the MIO in various software applications:

First, the choice of DOS is critical to gain complete access to all the MIO features. Although ICD built it with SpartaDOS in mind, only Sparta version 3.2 will work when the MIO is connected. All other Sparta versions will cause complete loss of drive access after you boot up the system.

Second, Atari DOS 2.5 will not accept the MIO Ramdisks. However, DOS 2.5 will allow the print spooler feature. I have quickly tested other DOS's and found that Atari DOS 2.0, SmartDOS 6.1 and MYDOS 4.0 will allow complete access to the MIO Ramdisks.

As far as I can tell, almost all dedicated software packages will at least access the print spooler feature. Thus, Print Shop will not access the extra Ramdisks, but you can allocate a very big print spooler and regain the Print Shop Editor menu about 1/2 of the way into a printout. I have experienced one bug thus far with Print Shop. If I choose an editor option requiring access to the disk drive (D1:) while the print spooler is completing a printout, the program seems to wait until the entire printout is finished before successfully accessing the drive.

I have unhappily discovered that the XM-301 version of BBS Express will not operate if the MIO is connected. I had hoped to use the MIO on the WAUG BBS. I have made several calls to talk to Keith Ledbetter about this (he now works at ICD). At first he thought it was a conflict between Sparta 3.2 and the modem handler. Then he decided there was a conflict between the MIO ROM and the BBS software. Apparently, there are no conflicts in his 850 version of the BBS. So, I guess I had bad luck on this application!

My most successful implementation of the MIO thus far is loading the AtariWriter Dictionary Disk into MIO D2:. Then when using AtariWriter Plus, I can select the Spell Checker module and have the Dictionary Disk online in MIO Ramdisk D2:. The spell checking is very fast and must rival the speed of PaperClip XE. This configuration still leaves me a 64K print spooler on my 256K MIO. A small problem seems to be that MIO Ramdisk sectors are always double density. So, if you copy a single density disk (720 SD sectors) into a MIO Ramdisk, it will consume 720 DD sectors. This is a net waste of 92K Ram. ICD says that you cannot format the Ramdisk into single density disks.

I also discovered a very useful MIO utility on Compuserve. The MIO.ARC file contains ML routines to save your current MIO configuration to D1:. A second utility will read the config file and reset the MIO. These utilities are conveniently executed from within a '.BAT' file (SpartaDOS).

I recently spoke to ICD and was told they are writing new ROMs for a future upgrade of the MIO. There are several reported bugs with the print spooler pointer and some problems have developed after extended periods of use.

As you can see, the marriage of the MIO and my XL has been kind of rocky so far. I would suggest that anyone considering buying the new MIO should first borrow one and test out the exact software - hardware applications you have in mind. I will be glad to answer your questions in person and

help anyone interested in testing out the versatility of this device.

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16-BIT EDUCATIONAL SOFTWARE NEWS

by Lois Hansen
reprinted from SLCC Journal, July 1987

In preparation for the WORLD OF ATARI fair, I called up some of the software companies known to be producing educational software for the ST. I thought some of you who didn't make it to the fair might like to know some of the news:

UNICORN: Perhaps the most exciting news is from Unicorn; they have come out with no less than TEN educational programs for the ST and they have several more programs very near to release. I spoke with the president of Unicorn, Jeff Stark, who told me that they have ABANDONED writing educational software for the Mac because Apple is now trying to position it as a business machine and retailers don't want to display educational software for the Mac. Unicorn is continuing to write for the Amiga and will get involved with the Apple IIGS, but at least at this point, their main 16-bit machine is the Atari ST. Jeff said that Unicorn has been designated the "official" Atari ST educational software line, and will be offered to retailers by Atari as part of the package when they sign up new dealers. If you have comments about their products, want to ask for specific kinds of software in the future, or simply want to encourage them to continue to develop more educational software for the ST, give them a call. The number's right there in your documentation. They're only in Las Vegas...when I called, the president answered the phone.

The newest products just released from Unicorn are Read-a-Rama for ages 5-8, a 2-disk program that does pictures to words and will accept user input words, and Aesop's Fables, a reading comprehension program for the same age group. This program took 8 months to develop, is on two disks, has 12 animated stories, and 1000 words of vocabulary Q & A. Coming soon (supposedly in July) are two more: Magical Myths, a reading comprehension for grades 4-8, and Word Master, a vocabulary builder for grades

3-8. Word Master will accept user input words, and additional data disks of words are planned.

FIRST BYTE: I also spoke with Richard Jacks, Vice President of Engineering at First Byte. Their specialty is talking programs for the ST; the obvious application is for pre-readers, but "reluctant" readers will find the First Byte talking math tutorial on the four basic operations, Mathtalk, very helpful. Richard told me about some other programs out now and coming soon: Out now is First Shapes, a preschool program that talks, and Mad Libs, based on the party game of that name. There is also another Mathtalk, about fractions, percents and decimals, and another preschool program, First Letters and Words. Also planned for release soon is SmoothTalker, not an educational program per se, but a program which will speak (or spell) any ASCII (text with no control characters) file your word processor can give it. This has obvious applications in beginning reading, and Richard said that Mac users in universities have used it as a kind of group class notes review session facilitator. Gather around the ST the way their grandparents gathered around the radio... He said it was also useful for checking input to spreadsheets. This program, like all the First Byte line, will list at \$49.95. A bargain in this latter case; some of us may want to call this company (which has an 800 number in L.A.) and tell them what we think of \$50 as a price for kids' software on a machine that costs considerably less than \$1000. But be ready to counter their wails about development costs with your claims of numerous friends with ST's ready to purchase educational software at a lower price. Remind the company of Borland (Turbo Pascal, etc.) and how people won't pirate if the price is low enough.

SPINNAKER (WINDHAM CLASSICS, TELLARIUM): The bad news comes from this Boston company, known for its 8-bit educational software like Snooper Troops, Rhymes and Riddles, and In Search of the Most Amazing Thing. They had already abandoned the 8-bit machine, and now they are ceasing distribution of their excellent ST math program, Homework Helper, and their graphic adventure series based on classic school texts like Treasure Island. The Tellarium series of more adult, popular books, such as Fahrenheit 451, is also cancelled for the ST. The PR person I spoke with, Libby McCauley, had been on the job only a month, and could not give me any coherent reason for this decision, other than they now preferred to emphasize their best-selling machines, Apple, IBM and Commodore, and that the company now was not exclusively educational, but had a three-part thrust: productivity, education and video. Obviously, now is the time for a few letters to convince Spinnaker that there is an Atari market after all.

ANTIC Magazine software: Antic continues to publish cheap (\$19.95) 8-bit software suitable for teenagers and (and above, of course), which, while not labeled educational, really is. There are simulations such as Earth Views and Orbit--A Trip to the Moon, which might appeal to your teenager. There are also some learning aids, such as speed reading and memorization helpers that might be helpful in your family. I have not seen any of their 16-bit.

ATARI CORP has finally released its cheap (\$18.95 for two disks!) educational software for the ST developed by the Arrakis Advantage Company. There are allegedly five packages of Algebra, two of Geometry, one each of Statistics and Trigonometry, four of Biology, and two each of Chemistry and Physics. I have seen Algebra, Geometry and Chemistry in the flesh at the show. Atari Corp gave us the Algebra I and Geometry I packages, which I will be evaluating and reporting about later.

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FOR SALE:

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The Pittsburgh Atari Computer Enthusiasts (P.A.C.E.) is the largest Atari Users Group in the Pittsburgh area and was founded in August, 1981 to help Atari computer users. P.A.C.E., a non-profit organization, has members in and around the greater Pittsburgh area and all over the country.

We meet once every month at the Green Tree Marriott Hotel, usually on the second Monday of the month, at 7:00 p.m. At the meetings we discuss subjects ranging from new products being introduced to new uses for old products. Members are encouraged to raise any problems they may be having (to which solutions are often found!), and to inform the others of any new discovery they may have made. The meetings are often lively and entertaining as well as educational. Typically, the presentations and demonstrations at the monthly meetings are provided by our members willing to share their experiences, however, sometimes we have representatives from companies that provide products and services applicable to the Atari Computer.

In addition to the regular monthly meeting the ST Special Interest Group (ST SIG) meets monthly to exchange information, ideas and public domain software specifically relating to the new Atari 520ST and 1040ST computers. P.A.C.E. periodically holds classes on various subjects ranging from language tutorials to assistance in the operation of various pieces of Atari related hardware and software. In addition, when we identify products of interest to many of our members we may negotiate a group purchase to pass on the lower cost to our members.

In addition to monthly meetings at the Green Tree Marriott, P.A.C.E. also sends out monthly newsletters to its members, other users groups across the country, and various magazines and manufacturers of Atari-compatible software and hardware. These newsletters contain news, reviews, and help with problems our members are having. Keeping PACE is considered to be one of the better newsletters in the national users group community.

We also maintain, on a 24 hour a day basis, an electronic Bulletin Board System (BBS) open to all. This Bulletin Board is accessible to 300 or 1200 baud modems, at 412-963-1355. In addition to up-to-date "Bulletins", the P.A.C.E. BBS also has user to user messages and a large selection of Public Domain software developed by our members and those of other user groups for the Atari computers.

The programs available on the BBS are just part of the Library of public programs the club has. Numbered (conservatively) at over 1000 different programs, this library contains games, word processors, communications programs, and various utilities and documentation files. Available to members at the meetings for a nominal fee, this software has helped many members since these programs range from small, simple utilities to full power programs that rival commercial software in their abilities, but not their cost.

We invite you to learn more about us. Feel free to drop by one of our meetings. If you would like further information about the club, or a complimentary newsletter, you can call our Bulletin Board and leave a message or write to P.A.C.E. at the following address:

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